



Advances in Research

10(4): 1-7, 2017; Article no.AIR.33027
ISSN: 2348-0394, NLM ID: 101666096

The Challenges of New Product Development in a Developing Economy

M. O. Oduola¹ and A. M. Yakubu^{1*}

¹Prototype Engineering Development Institute, Ilesa Osun State, Nigeria.

Authors' contributions

This work was carried out in collaboration between both authors. Authors MOO and AMY conceptualized the research topic. Author MOO designed the content of the research topic while author AMY managed the literature searches and developed the contents of this research, wrote the protocol and wrote the first draft of the manuscript. Both authors read and approved the final manuscript.

Article Information

DOI: 10.9734/AIR/2017/33027

Editor(s):

(1) Simone Domenico Scagnelli, Department of Management, University of Torino, Italy.

Reviewers:

(1) Mohd Fazli Mohd Sam, Universiti Teknikal Malaysia Melaka, Malaysia.

(2) Arnela Bevanda, University of Mostar, Bosnia and Herzegovina.

Complete Peer review History: <http://www.sciencedomain.org/review-history/19880>

Short Research Article

Received 28th March 2017

Accepted 21st April 2017

Published 5th July 2017

ABSTRACT

New Product Development (NPD) involves creating a new product from concept to the market. The product could be entirely new or rebranding. It is a critical focus of any production firm. The increase in volume of new competitive products is an indicator of any fast growing production concern. However the challenges that could affect development of a new product in a developing economy include, but not limited to the following: Inadequate infrastructural facilities, lack of funding, low technological skill, lead time for product development, poor marketing strategies and post product evaluation. There are few studies dedicated to New Product Development (NPD) in this hypercompetitive de-regulated industry today, hence the need to study the probable challenges to be encountered in developing new product becomes necessary. Profit and value added oriented industries have structured organization that facilitates new product development. Such products are developed to satisfy customers' needs at a time. One critical factor that could be used to assess the acceptability of any new product in the market is the post market performance analysis. However the magnitude of this analysis is not isolated from those challenges peculiar to New Product Development. This study highlights method and stages that project managers require to develop quality new products with challenging time-to-market goals.

*Corresponding author: E-mail: yakmoji79@yahoo.com;

Keywords: A product; new product development; methods; strategies; challenges.

1. INTRODUCTION

A product is an item grown or produced to satisfy a need. In other words it is a good, idea, method, information, object or service created as a result of a process and serves a need or satisfies a want. A product can be tangible (Physical) or intangible (Services). According to [1], business continues recording success in the market as long as the firm introduces new product that satisfies costumers.

The very early phase in the product innovation process, the so-called front-end of innovation (FEI), is the stage of the innovation process where concept is conceived, business opportunities are analyzed and decisions are taken on methods of translating the ideas to market driven products. [2], considered these first phases in the product development process as critical having the largest impact on the end result of the project and the highest payback to one's investments. The New Product Development, NDP process comprises several activities performed by firms in transforming innovative ideas into market driven products.

New Product Development (NPD) is one of the most important determinants of sustained company performance and therefore represents a key challenge for many firms. Accordingly, numerous authors have focused their research on improving new product development and identified several success factors, including cross-functional collaboration during product development, fast times to market, and product innovativeness. [3], for example, provides sound overviews of success factors for new product development. Compared to these factors, all of which have already been studied very intensively, relatively little research has so far been conducted into the use of methods in new product development [4]. Notwithstanding, studies in this field clearly show that precisely the adoption of product development methods is crucial to the performance of development projects [5].

2. DEVELOPING ECONOMY

A developing economy is one where people live below standard characterized by less developed industries. However, it's all relative. Nineteenth-century Britain was the most developed country in the world, but looking at the modern trend

today it might be considered a developing economy. A developing economy can also be determined by which a nation generates income. In a developing economy a country relies on its natural resources while a developed economy generates incomes through use of information and communication technology and heavily investing in education, research development and advanced technology to add values to all resources at the reach.

3. METHODS OF ACHIEVING NEW PRODUCT DEVELOPMENT

Having identified the market saturation for the existing product and the need for a new product or service, there is the need to consider some effective methods that could be used to achieve the objectives. However these methods are not limited to the following:

3.1 Reverse Engineering

Reverse engineering is the process of duplicating an existing part, subassembly, or product without the aid of drawings, documentation, or a computer model or reverse engineering is considered as a process of obtaining a geometric CAD model from 3D points acquired by scanning/ digitizing the existing products [6].

3.2 Innovation

Innovation is the multi-stage process whereby organizations transform ideas into new/improved products, service or processes, in order to advance, compete and differentiate themselves successfully in their marketplace [7]. [8] defines innovation as a new idea which will be implemented for realizing the competitive advantage of the companies, at a time when they had similar opportunities to present their products with low cost. Most innovative ideas translated into new products should be must be economically viable, sustainable, ecofriendly, replicable and meet customer satisfaction.

3.3 Invention

A new scientific or technical idea identified with means of its embodiment or accomplishment. An invention must be novel having utility, patentable, workable and non-obvious.

4. NEW PRODUCT DEVELOPMENT STAGES

Basically, there are seven stages involved in rolling product into market from its conceptualization [9]. The stages of the model are as follows:

- (i) **New Product Strategy and Idea Creation:** This stage involves analyzing current marketing trends of existing products, generating innovative ideas that can be translated to products that satisfied the company objectives and as well meeting the market demand.
- (ii) **Sorting and Evaluation of Idea:** Sorting is done to set specific criteria for ideas that supersede among several options in pre-implementation stage of new product development.
- (iii) **Business Analysis:** Analyzing business initially and progressively helps a firm to build a system that monitors progress. Aspect of business which includes input metrics, such as average time in each stage, as well as output metrics that measure the value of launched products, percentage of new product sales and other figures that provide valuable feedback are analyzed.
- (iv) **Development:** This entails the transformation of documented design into a product that is demonstrable and producible. The design could involve an imperial sketch, Virtual Manufacturing techniques through the use of CADs and Simulation software, material selection for cost reduction, improvement in product performance and manufacturability and of course manufacturing processes, convectional or non-conventional method.
- (v) **Testing:** Testing conducts commercial experiments necessary to verify earlier business judgments. It has to do with quality management which involves quality control and assurance.
- (vi) **Quality Control and Assurance:** Quality Control is a system of maintaining standards in manufactured products by testing a sample of the output against the specification. While Quality Assurance is a procedure or set of procedures intended to ensure that a product or service in development stage meets specified requirements. However an adjustment in the form of modification could be made to

an existing product for greater appeal or functionality.

- (vii) **Testing Market:** This is an experiment conducted in a field laboratory (test market) comprising of actual stores and real-life buy situations without the buyers knowing their involvement in an evaluation exercise. More information about the time of need and marketing strategies could be obtained through these exercises.
- (viii) **Commercialization:** This is the process of introducing a new product or production method into market. Advertisement and promotion of such product could be done by creating awareness through Trade Journals Conferences, Personal Selling, Word of Mouth and other Social Media.
- (ix) **Review of Market Performance:** The Company must review the status of the product in the market to ascertain the level of product acceptance, the demand, sales and profit scale, satisfaction derived by the customers after sales, the marketing team players participation, and the readiness of competitors introducing similar new product in the market.

5. FACTORS INFLUENCING NEW PRODUCT DEVELOPMENT PROCESS

5.1 Organizational Structure and Culture

Organizational Structure defines the channel of authorities, communications, rights and duties of all team players within an organization. It determines how the roles, authorities and responsibilities are assigned, controlled, and coordinated. The information processing view of the organization has dominated the way organizational design was conceptualized in a NPD setting. Taking informational inputs and transforming them into informational outputs is intimately related to communication. The study of organizational structures in innovation settings starts with the research stream focused on understanding communication in R&D organizations. From that research stream, intensive communication between scientists and engineers was an important determinant of R&D performance. In the project organization, individuals of different technical/functional expertise are grouped into an organizational subunit responsible for one product or service (or potentially a limited set of closely related products/services) [10].



Fig. 1. Stages of New Product Development

Source: [9]

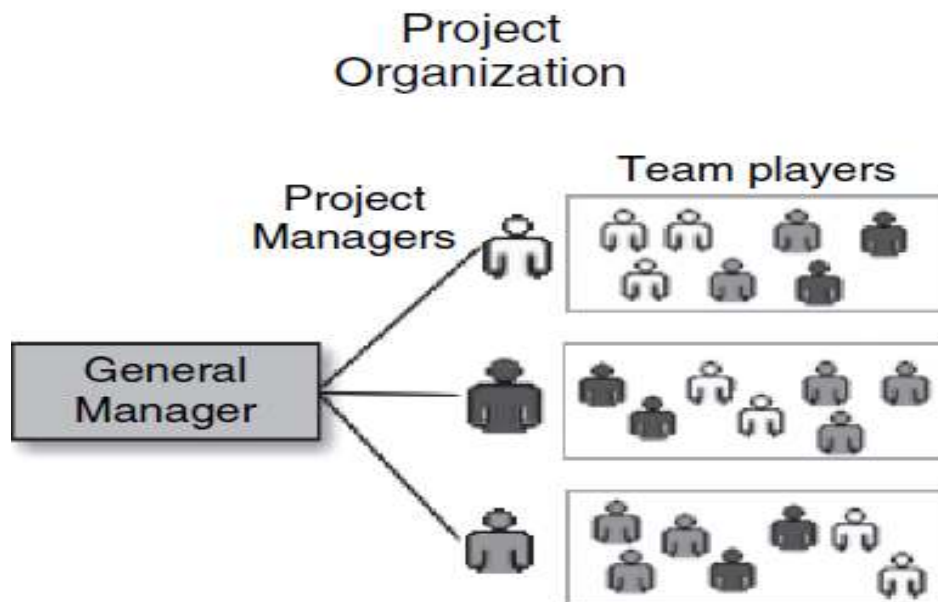


Fig. 2. A Project-based organization structure

Source: [10]

For an idea to get into a competitive market to meet the need at a given time, the organizational structure must possess the following qualities: fast cycle capability, autonomy, effective planning and coordination.

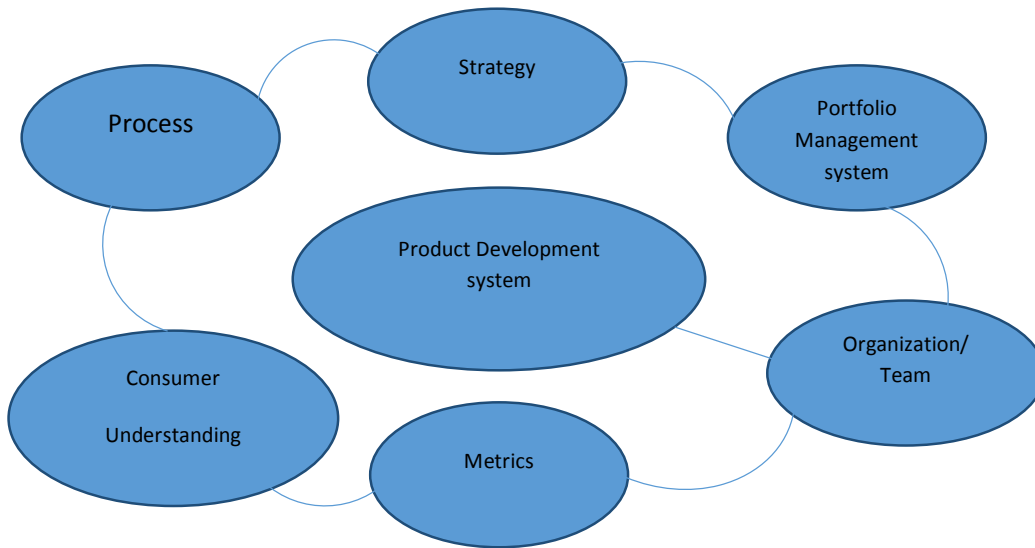


Fig. 3. Team oriented product development cycle

5.2 Leadership

Leadership is the ability of management to execute collaborate effort [11]. The effort includes establishing a clear vision, transferring the vision among the team players, providing the information, principles and skills required to realize that vision, coordinating and managing the conflicts in the interests of individual and the organization. The level of involvement in new product development, clarity of goal and vision, effective project management, tolerance for trial and error and individual initiative characterize the system of leadership that organization operates.

5.3 Team Building

Ability to identify and motivate individual employees to form a team that stays together, works together, and achieves together. These qualities once established reduce interdepartmental conflict, enhance social cohesion and promote frequent and direct communication. A team oriented product development always succeed because ideas are harvested and integrated to fast track the product into market with the aid of responsibility disintegration. Fig. 3 above represents the list of team players in product development.

6. THE CHALLENGES OF A NEW PRODUCT DEVELOPMENT

There are peculiar challenges that could hinder the process of developing new product in developing nation. However it does not mean

that developed nations are free from these challenges but efforts are put in place to minimize the occurrences and consequences of these challenges down the line of developmental stages. Among such challenges are:

6.1 Underfunding

It is always difficult transforming an innovative idea into marketable product if every stage involved in the process is not properly funded. Most entrepreneurial firms with good product ideas simply do not have the resources to effectively implement product development and commercialization.

6.2 Industrial Conflict

Most entrepreneurial firms are exposed to various degrees of industrial crises resulting from management, denying some benefits meant for employees, employers not satisfied with employers' inputs, individual and environmental influences. If the productive time is wasted in settling conflicts within organization, creating an innovative idea and transforming such idea into product that satisfies all market requirements will be difficult.

6.3 Government Policy

Every new policy enacted by government directly affects activities of any firm within the cycle. In a situation where there are strict government controls and regulations on products like foods,

automobile parts, and pharmaceuticals, concerned firms are required to obtain government approvals for every new product that may take longer time to approve.

6.4 Limited Marketing Strategies

Most firms in developing nations usually concentrated on niche markets competing with few opportunities. Such small fragmented consumer demands do not always encourage the product developer to invest on developing and commercially launching a new product.

6.5 Product Innovation Scope

Some product categories are short of innovative inputs. The purpose of developing a new product is to sustain the market for profit without compromising the market needs. Mostly, ideas that are not found in the market may lack innovative input.

6.6 Entrepreneurial Competition

The major significant breakthrough of any innovative product is the tendency for companies springing up to develop similar products through copying or reverse engineering techniques thereby resulting to competitive marketing. However the original firm may not have the resources to compete with the larger firm thereby limited to enjoying the benefits of its innovation and could only be possible if such has the patent right.

6.7 Consumer Behavior Uncertainty

Consumer Behavior towards a particular product in market influences the business plan of the firm that developed such product. The fact remains that consumer's taste changes at a faster rate. In a situation where a new developed product passes the market test and demand increases, it might be difficult for a small firm with limited resources to meeting the market demands.

6.8 Short Product Life Cycle

Change in global technology brings about evolution of new products in global market. Most firms want to drive their new products into market to make profit as quick as possible before competition sets in. A new product may become obsolete very soon if the consumer taste shifted for an emerging close substitute thereby shorten

the life cycle of the lead product. It will be difficult for small firm to achieve its financial objectives if such firm is not able to develop and sell fast enough.

7. STRATEGIES FOR IMPROVING SPEED, EFFICIENT AND QUALITY IN NEW PRODUCT DEVELOPMENT

Having identified those challenges peculiar to new product development, some strategies could be used to ensure an effective, efficient new product development process. To achieve these objectives, more emphases should be on Product Development Plan, Aggregate Project Plan, Project Return Maps and Purchasing Expertise in practice.

8. DISCUSSION AND CONCLUSIONS

Having identified the challenges facing new product development, Factors Influencing New Product Development Process and Strategies for Improving Speed, Efficient and Quality in New Product Development, a profit oriented firm could utilize the necessity of these key areas when developing a new product. More so, to obtain the performance indicator of a product in the market, the Company must review the status of the product in the market to ascertain the level of product acceptance, the demand, sales and profit scale, satisfaction derived by the customers after sales, the marketing team players participation and satisfaction, and the readiness of competitors introducing similar new product in the market. These keys factors inform the product developer to intensify more strategies needed to exercise and sustain the market value of the product. However, new product success still remains the critical challenge for companies. Many companies are aware of the major role new products must play in their future and quest for prosperity: Companies are constantly searching for ways to revitalize, restructure and redesign their NPD practices and processes for better results. This framework proposes that to achieve success, NPD firms should have a clear and well communicated new product strategy. These firms should have well defined new product arenas along with long term trust, with clear goals. Successful businesses and teams of NPD have a dedication towards the voice of the customer. It is critical that firm should gather as many ideas as possible and a large number of these should come from customers so that the firm can be in a position to design and develop

winning new products. Up-front homework prior to the initiation of product design and development is found to be a key factor in a firm's success.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Nadia Bhuiyan. A framework for successful new product development. *Journal of Industrial Engineering and Management, JIEM*. 2011;4(4):746-770.
2. Dewulf K. Sustainable Product Innovation: The importance of the front- end stage in the innovation process, *Advances in Industrial Design Engineering, INTECH*; 2013.
DOI: 10.5772/52461
3. Ernst H. Success factors of new product development: A review of the empirical literature. *International Journal of Management Reviews*. 2002;4(1):1–40.
4. Nijssen EJ, Frambach RT. Determinants of the adoption of new product development tools by industrial firms. *Industrial Marketing Management*. 2000;29(2):121–131.
5. Graner M, Mibler-Behr M. The use of methods in new product development: A review of empirical literature. *International Journal of Product Development*. 2012; 16(2):158–184.
6. Niranjana Singh. Reverse Engineering. A General Review. *International Journal of Advanced Engineering Research and Studies*. 2012;2(1):24-28.
7. Baregheh A, Rowley J, Sambrook S. Towards a multidisciplinary definition of Innovation, *Management Decision*. 2009; 47(8):1323-1339.
8. Cherroun Reguia. Product Innovation and the Competitive Advantages. *European Scientific Journal*. 2014;Special Edition(1): 140-156.
9. Gaurav A. Stages process steps of new product development. *Sharing wisdom and vivid memories of life. Kalyan City Life*; 2012.
(Accessed 16 March 2017)
Available:<http://kalyancity.blogspot.com.ng/2012/02/stages-process-steps-of-new-product.html>
10. Manuel E. Sosa, Jürgen Mihm. Organizational design for new product development. *A handbook of new product development management, Science Direct, Special Ed. Ch*. 2008;7:165-167.
11. Obiwuru TC, Okwu AT, Akpan VO, Nwankwere IA. Effect of leadership on organizational performance: A survey of selected small scale enterprises in Ikosi-Ketu council development area of Lagos State, Nigeria. *Australian Journal of Business and Management Research*. 2011;7(1):100-111.

© 2017 Oduola and Yakubu; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:

*The peer review history for this paper can be accessed here:
<http://sciencedomain.org/review-history/19880>*